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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/905,532	07/14/2001	Antony John Rogers	063170.6291	3485

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EXAMINER	
PYZOCHA, MICHAEL J	
ART UNIT	PAPER NUMBER
2437	

NOTIFICATION DATE	DELIVERY MODE
02/10/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	09/905,532	ROGERS ET AL.	
	Examiner	Art Unit	
	MICHAEL PYZOCHA	2437	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4,8-16 and 20-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,8-16 and 20-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1, 4, 8-16, and 20-23 are pending.

2. Amendment filed 01/22/2008 has been received and considered.

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Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 4, 8-16, 20, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chess (US 6192512) in view of Nachenberg (US 6851057).

As per claims 1, 10-12, and 14, Chess discloses a method and systems of detecting viral code in subject files, comprising: creating an artificial memory region spanning one or more components of the operating system (see Fig. 2 column 4 lines 49-51); emulating execution of at least a portion of computer executable code in a subject file (see column 4 lines 33-49); monitoring attempts by the emulated computer executable code to access the artificial memory region; in response to detecting an attempt to access the artificial memory region, determining a source program that is associated with the attempt to access the artificial memory region and determining based on the attempt to access the artificial memory region that the emulated computer executable code is viral (see column 4 lines 49-54).

Chess fails to explicitly disclose the artificial memory region is associated with an export table of a dynamically-linked library; determining an export table entry of the dynamically-linked library that is associated with the attempt to access information and basing a virus determination on this entry.

However, Nachenberg teaches a export table of a dynamically-linked library as an entry point for viruses (see column 5 lines 44-67 and column 6 lines 53-64); and monitoring these entry points (i.e. modified entries of the export table) to determine whether a virus is present (see column 8 lines 6-22 and column 9 lines 47-65).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to monitor export tables of dynamically-linked libraries in the Chess system.

Motivation to do so would have been that the export tables are a known entry point of viruses (see Nachenberg column 6 lines 53-64).

As per claims 4 and 16, the modified Chess and Nachenberg system discloses emulating functionality of the identified operating system call while monitoring the operating system call to determine whether the computer executable code is viral (see Chess column 4 lines 33-54).

As per claims 8, 9, 20 and 23, the modified Chess and Nachenberg system discloses monitoring access by the emulated computer executable code to dynamically linked functions to determine viral activity (see Nachenberg column 5 lines 44-67; column 6 lines 53-64; column 8 lines 6-22 and column 9 lines 47-65).

As per claims 13 and 15, the modified Chess and Nachenberg system discloses a fourth segment comprising auxiliary code, wherein the auxiliary code determines an operating system call that the emulated computer executable code attempted to access; a fifth segment comprising analyzer code, wherein the analyzer code monitors the operating system call to determine whether the computer executable code is viral, while emulation continues (see Chess column 4 lines 33-54).

As per claim 22, the modified Chess and Nachenberg system discloses creating an artificial memory region comprises creating a custom version of an export table with predetermined values for the entry points (see Nachenberg column 5 lines 44-67; column 6 lines 53-64; column 8 lines 6-22 and column 9 lines 47-65).

5. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over the modified Chess and Nachenberg system as applied to claim 1 above, and further in view of Chambers (US 5398196).

As per claim 21, the modified Chess and Nachenberg system fails to disclose monitoring accesses by the emulated computer executable code to the artificial memory region to detect looping; and determining based on the detection of looping that the emulated computer executable code is viral.

However, Chambers teaches detecting looping to indicate a virus (see Chambers column 10 lines 40-58).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to monitor for looping in the modified Chess and Nachenberg system.

Motivation to do so would have been to prevent viruses from replicating themselves (see Chambers column 10 lines 40-58).

Response to Arguments

6. Applicant's arguments filed 01/22/2008 have been fully considered but they are not persuasive. Applicant argues that the modified Chess and Nachenberg system fails to disclose: "creating an artificial memory region spanning one or more components of the operating system, wherein the artificial memory region is associated with an export table of a dynamically-linked library"; "in response to detecting an attempt to access the artificial memory region, determining an export table entry in the export table of the dynamically-linked library that is associated with the attempt to access the artificial memory region"; and "determining based on the export table entry associated with the attempt to access the artificial memory region that the emulated computer executable code is viral".

With respect to Applicant's argument that the modified Chess and Nachenberg system fails to disclose "creating an artificial memory region spanning one or more components of the operating system, wherein the artificial memory region is associated with an export table of a dynamically-linked library"; Chess discloses creating an artificial memory region spanning one or more components of the operating system (see column 4 lines 49-51) while Nachenberg teaches monitoring entry points of viruses by emulating the applications and determining where virtual memory has been modified (see column 9 lines 47-65). Furthermore, Nachenberg teaches that the export table of

DLL is a place where virus modify values as an entry point for said virus (see column 6 lines 53-64); therefore in order for Nachenberg to determine this virus is in the system it must include the export table in the artificial memory created in column 9. When Nachenberg is combined with Chess, as put forth above, the created artificial memory region is associated with an export table of a DLL. Therefore, the combined references teach "creating an artificial memory region spanning one or more components of the operating system, wherein the artificial memory region is associated with an export table of a dynamically-linked library".

With respect to Applicant's argument that the modified Chess and Nachenberg system fails to disclose "in response to detecting an attempt to access the artificial memory region, determining an export table entry in the export table of the dynamically-linked library that is associated with the attempt to access the artificial memory region", Applicant argues that limitations have been ignored by the examiner, however, these arguments attack each reference separately and one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Additionally, as put forth above, Chess teaches in response to detecting an attempt to access the artificial memory region, determining a source program that is associated with the attempt to access the artificial memory region (see column 4 lines 49-54). Nachenberg teaches monitoring entry points of viruses by emulating the applications, determining where virtual memory has been modified and reporting which entry point is infected (see column 9 lines 47-

65). Furthermore, Nachenberg teaches that the export table of DLL is a place where virus modify values as an entry point for said virus (see column 6 lines 53-64); therefore in order for Nachenberg to determine this virus is in the system it must include the export table in the artificial memory created in column 9 and when an entry in the export table is changed this change will reported by the system. Therefore, the combined references teach disclose "in response to detecting an attempt to access the artificial memory region, determining an export table entry in the export table of the dynamically-linked library that is associated with the attempt to access the artificial memory region".

With respect to Applicant's argument that the modified Chess and Nachenberg system fails to disclose "determining based on the export table entry associated with the attempt to access the artificial memory region that the emulated computer executable code is viral", both Chess (see column 4 lines 49-54) and Nachenberg (see column 6 lines 53-64 and column 9 lines 47-65) teach determining that a file is viral based on accesses and/or modifications to artificial memory. Furthermore, Nachenberg teaches that a modified entry of the export table is in indication of viral activity (see column 6 lines 53-64). Therefore, the combination teaches "determining based on the export table entry associated with the attempt to access the artificial memory region that the emulated computer executable code is viral".

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL PYZOCHA whose telephone number is (571)272-3875. The examiner can normally be reached on Monday-Thursday, 7:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emmanuel Moise can be reached on (571) 272-3865. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. P./
Examiner, Art Unit 2437

/Emmanuel L. Moise/
Supervisory Patent Examiner, Art Unit 2437